



VERMONT AGENCY OF TRANSPORTATION

FY2021 Budget Presentation

*Kristin Higgins, P. E.
Structures Program Manager*

*Pamela M. Thurber, P.E.
Bridge Management & Inspection Manager*



Structures Program Overview

Funding Break down

Vermont's bridge population

Prioritizing structures for Programming

Candidates vs Pre-Candidates

Structures SFY2021 Budget

10g report (Expanded and New Projects)

2019 Program Performance

Accelerated Bridge Program update

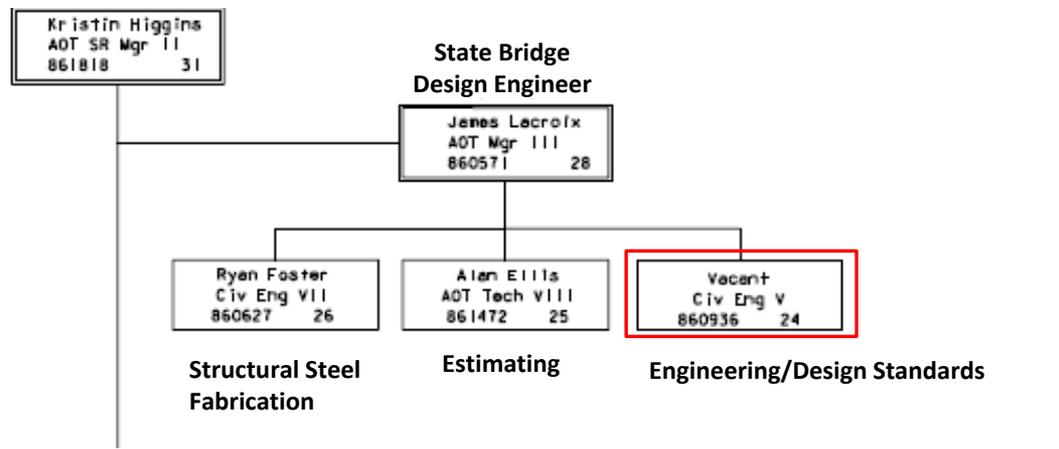
Project Pictures



Presentation Overview



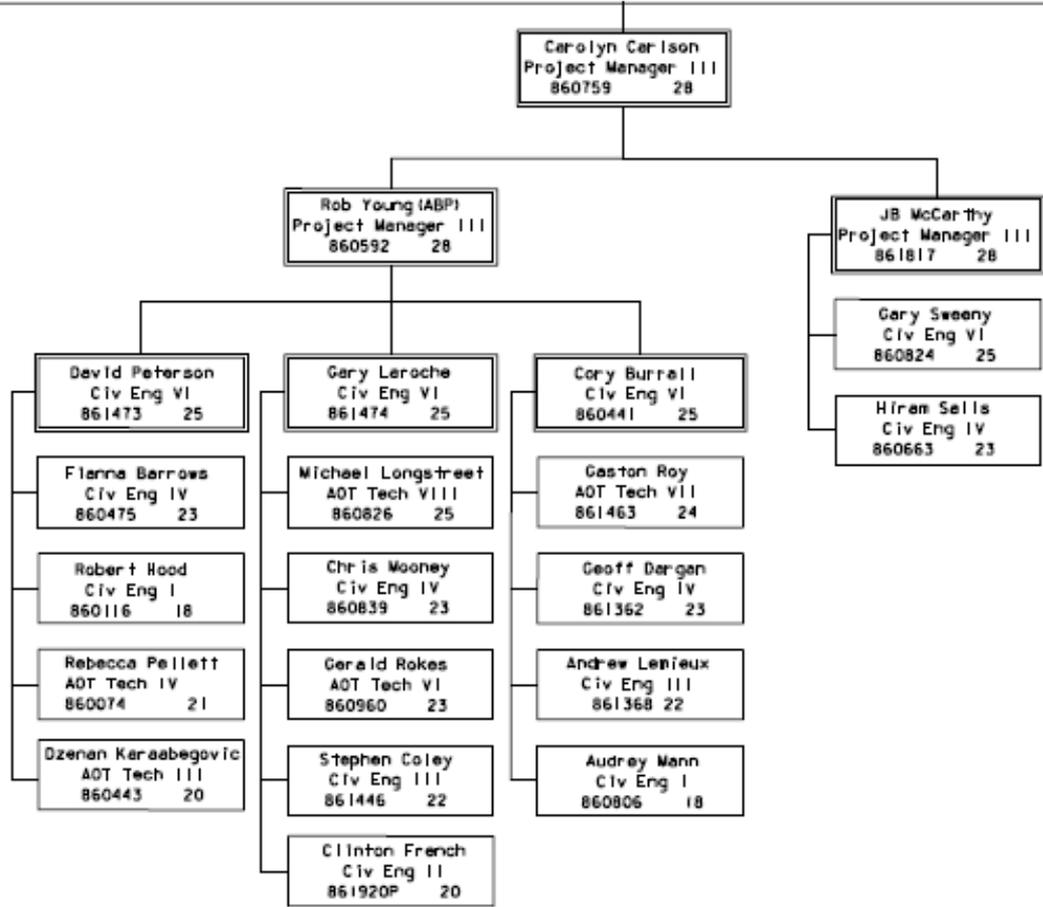
Structures/Hydraulics Program Organizational Chart



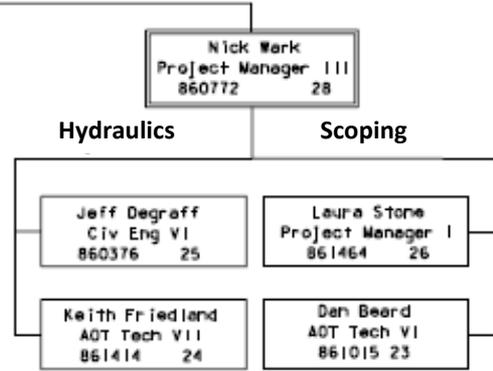
Consultant Management/ Alternative Contracting



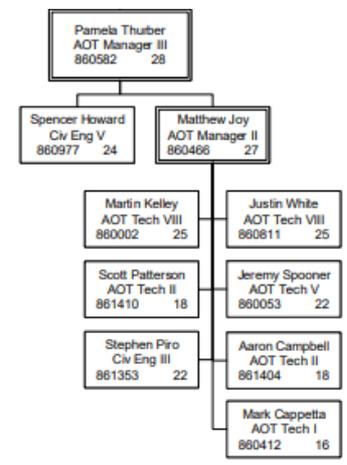
In-House Design



Project Initiation & Innovation Team/Hydraulics



Asset Management



Interstate Bridge – Funds bridges and large culverts within Vermont’s Interstate corridor including bridges crossing over the interstate.

- Shared funding – 90% Federal and 10% State

State Highway Bridge – Funds bridges, large culverts and retaining walls on Vermont’s State Highway system.

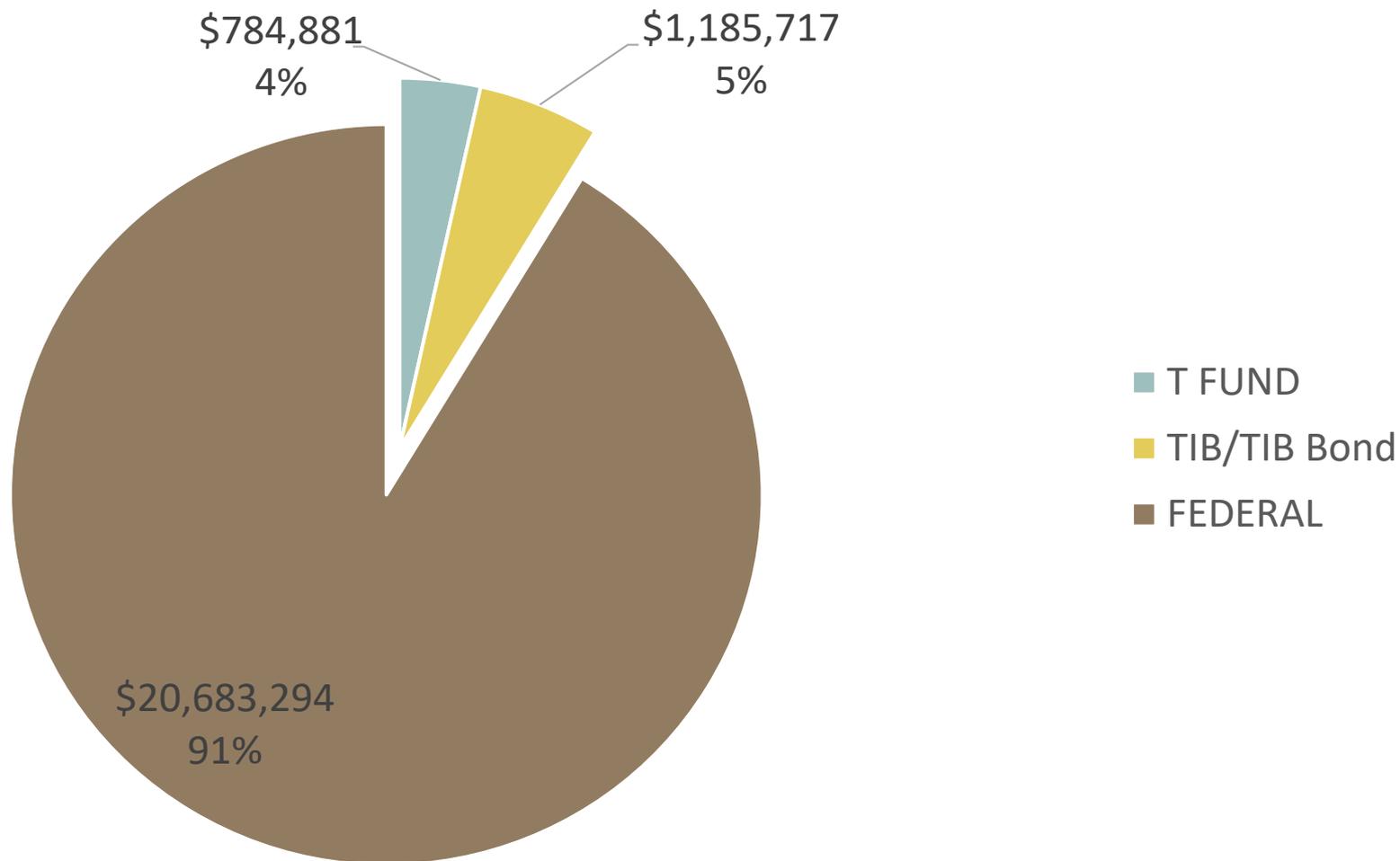
- Shared funding – 80% Federal and 20% State

Town Highway Bridge Program – Funds bridges on Class 1, 2, and 3 Town Highways.

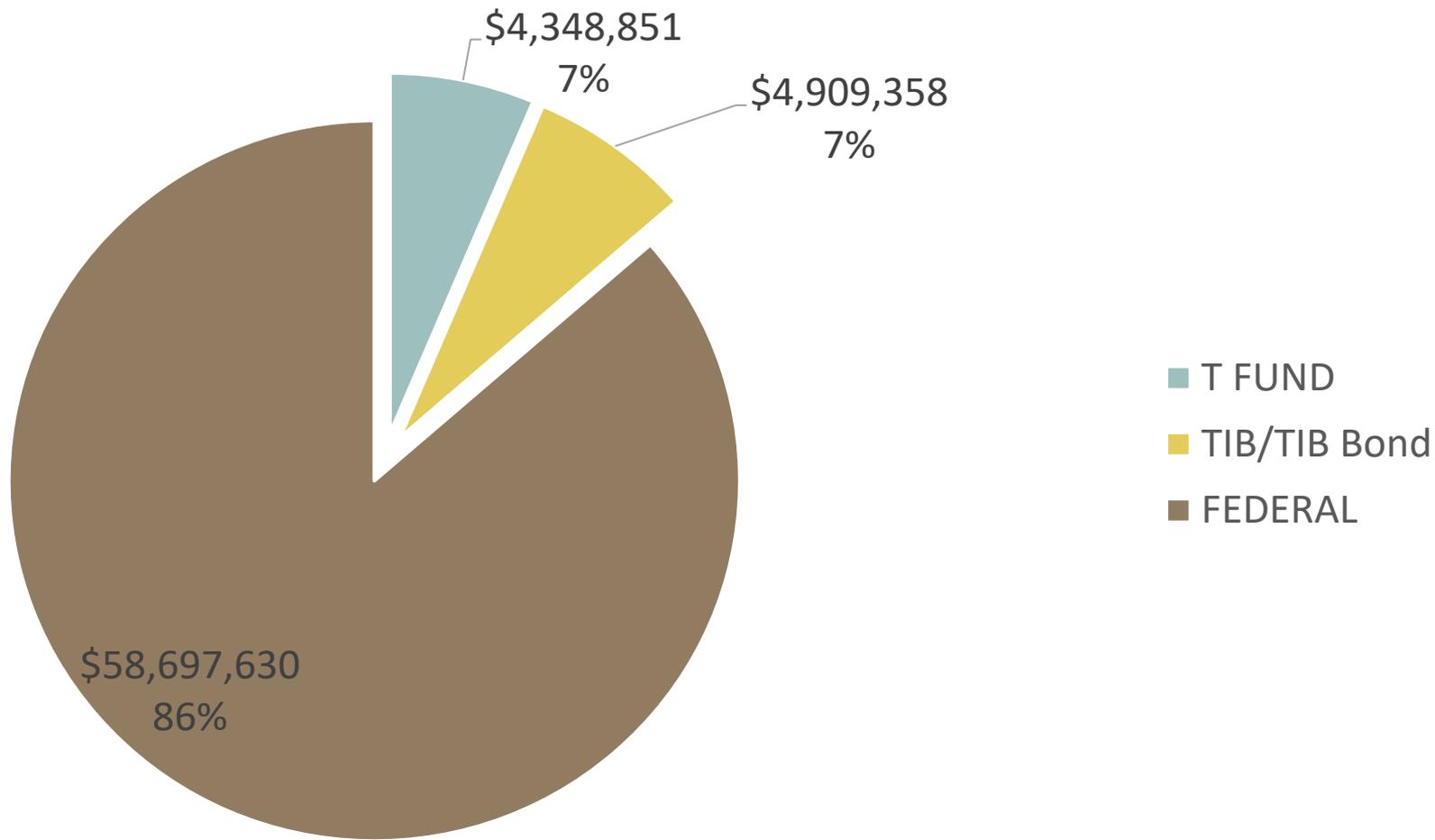
- Shared funding – 80% Federal, 10% State, and 10% Municipal

Bridge Programs Funded

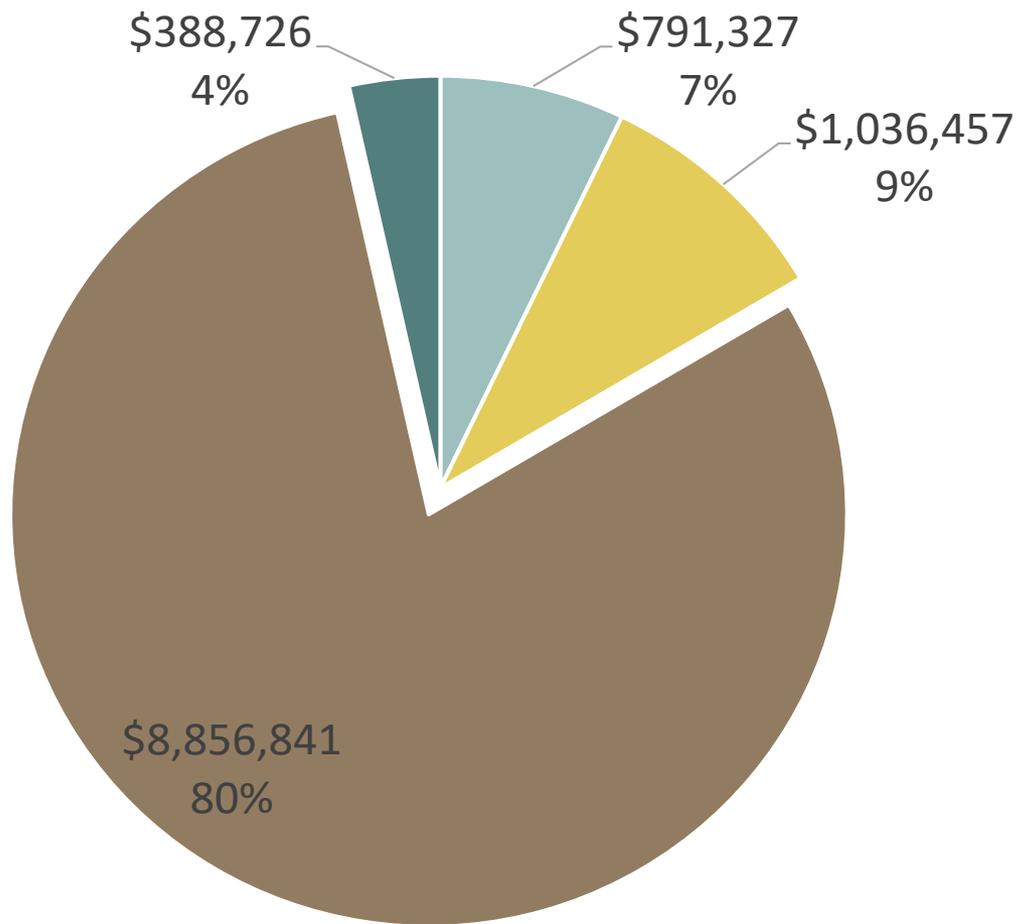




FY2021 Budget Breakdown for Interstate Bridge Program by Funding Source



FY2021 Budget Breakdown for State Highway Bridge Program by Funding Source



- T FUND
- TIB/TIB Bond
- FEDERAL
- LOCAL

FY2021 Budget Breakdown for Town Highway Bridge Program by Funding Source

Structure Type	Interstate State-Owned	State Highway Non-Interstate State-Owned	Town Highway Municipally-Owned	Other Private or Rail-Owned	Total All Owners
Long Structures (span length greater than 20 feet)	313	809	1,652	7	2,781
Poor	7	33	27	0	67
Fair	170	384	686	3	1,243
Good	136	392	939	4	1,471
Short Structures (span length greater than 6 feet to 20 feet)	210	1,053	*	*	1,263
Poor	2	50	*	*	52
Fair	100	579	*	*	679
Good	108	424	*	*	532
Total Structures	523	1,862	1,652	7	4,044

* VTrans does not maintain an inventory or perform safety inspections of town highway shorts

2019 Structure Asset Population and Condition Classification



Good (G), Fair (F), Poor(P) – Bridge condition is determined by the lowest rating of National Bridge Inventory (NBI) component condition ratings (deck, superstructure, substructure, or culvert).

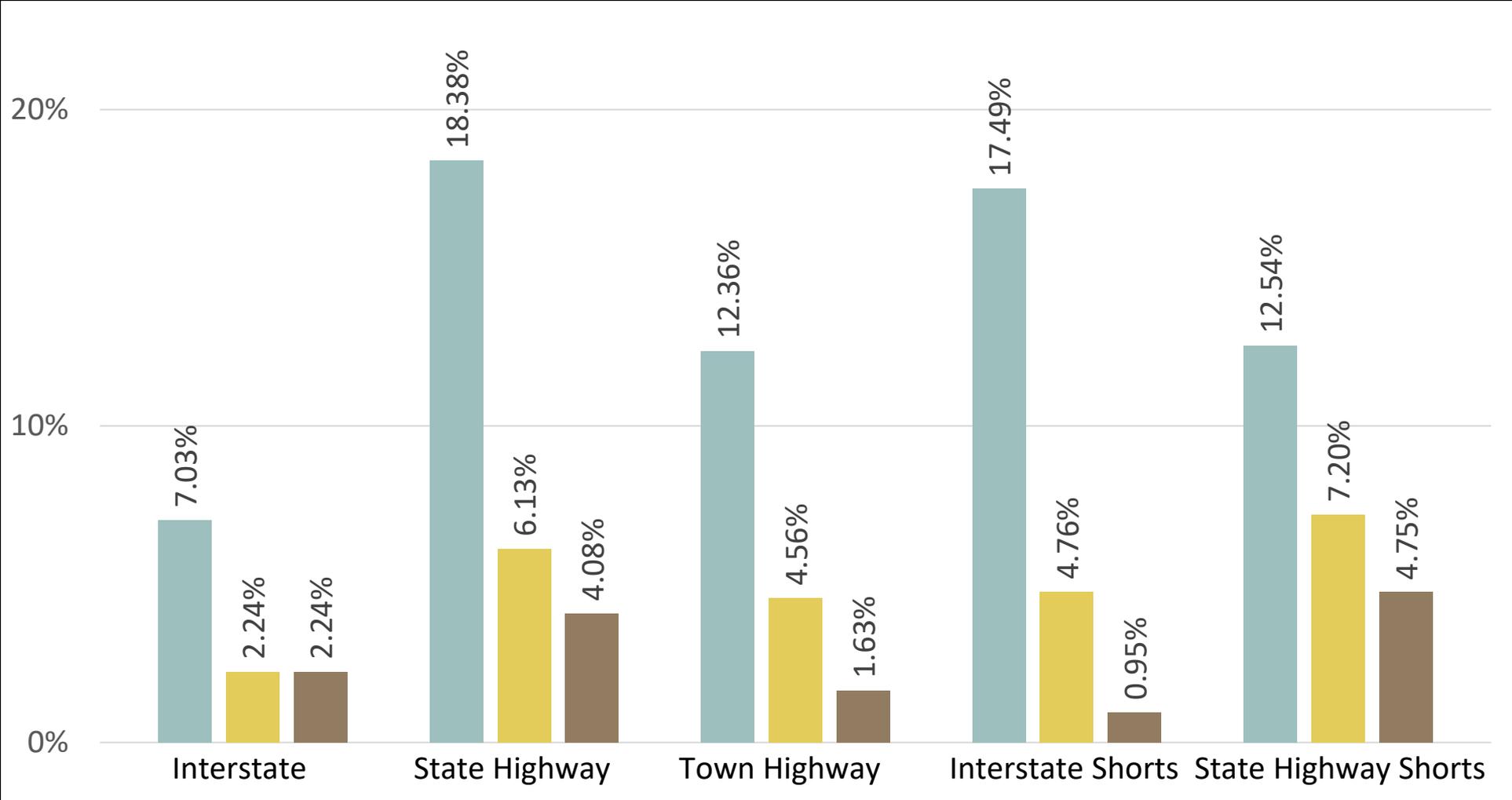
- If the lowest rating is greater than or equal to 7, the bridge is classified as Good; if it is less than or equal to 4, the classification is Poor. Bridges rated 5 or 6 are classified as Fair.

Structurally Deficient – Defined as a classification given to a bridge which has any component in Poor or worse condition.

- Previously defined as having a component condition rating of 4 or less (deck, superstructure, substructure, or culvert), OR having an appraisal rating of 2 or less for structural condition or waterway adequacy.

Bridge Definitions /Changes

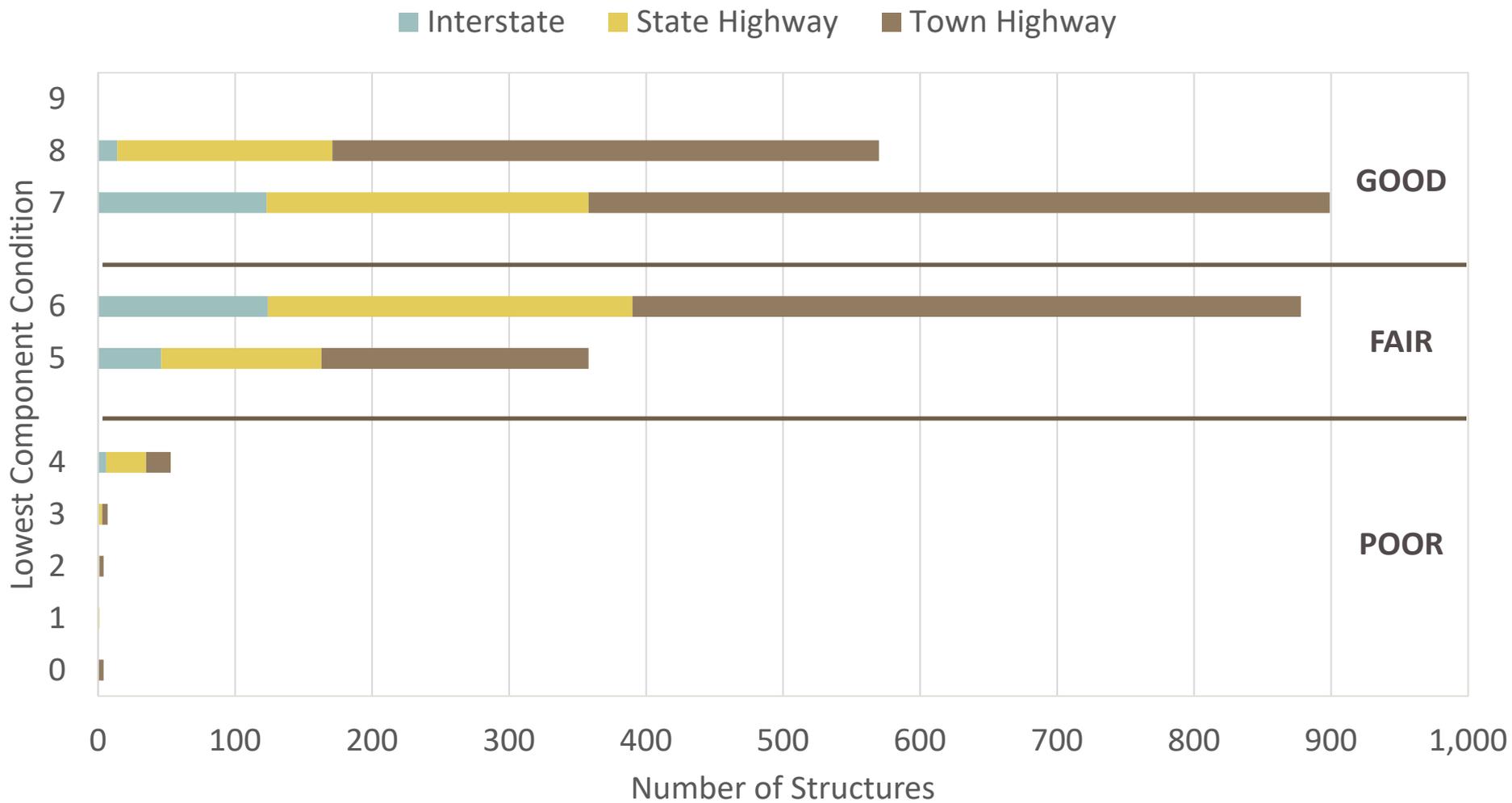




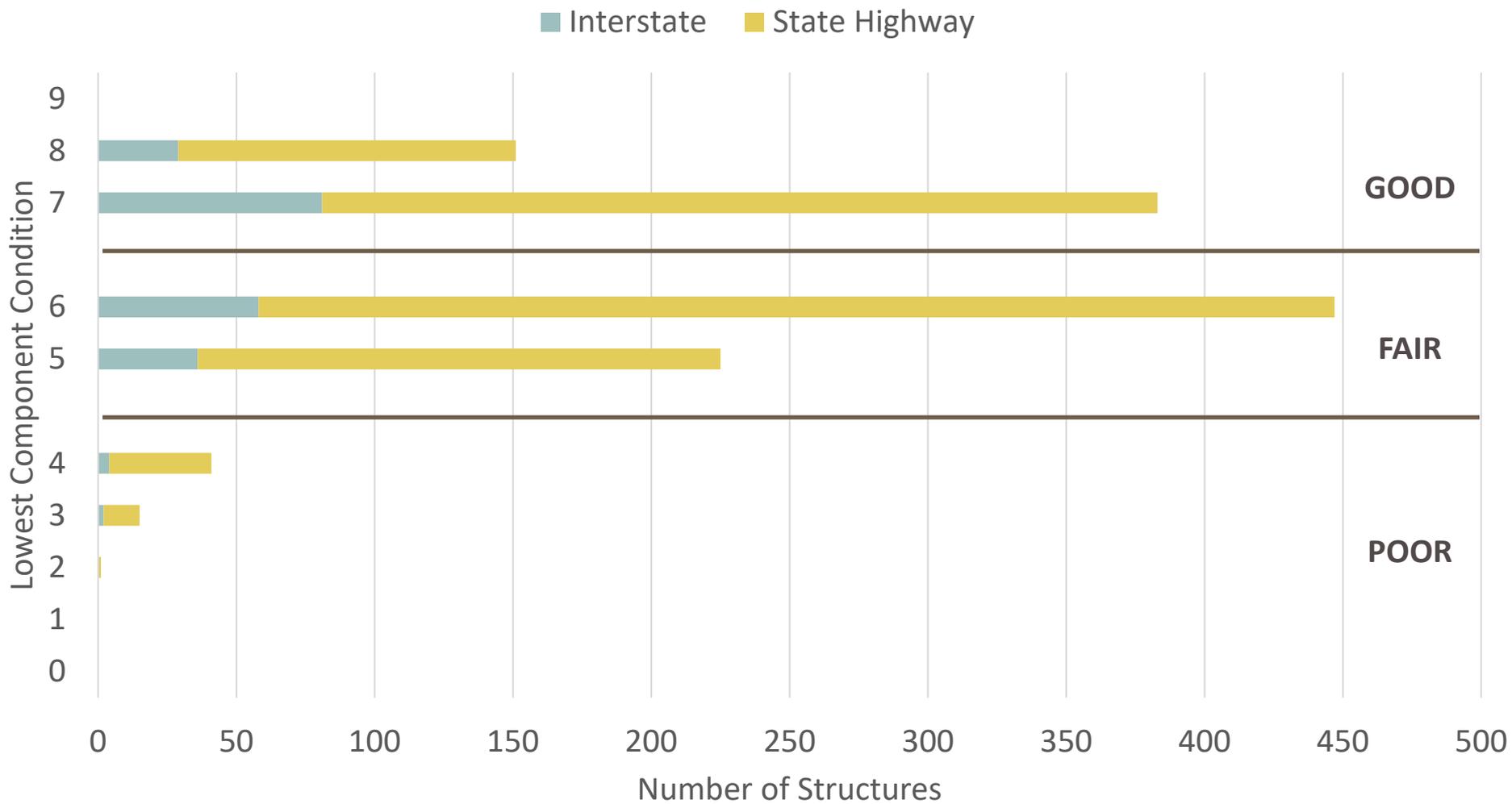
Structural Deficiency 10 Year Trend by Program

*2009, 2014, and 2019 federal submittals





Long Structures – Current Condition



Short Structures – Current Condition



Why a Preservation Shift?

Priority Rating

*soon to be replaced by VTrans'
Project Selection & Project Prioritization



**Condition and
Remaining
Life**
40 points

**Load Capacity
and Use**
15 points

**Regional
Priority**
15 points

**Special and
Asset Factors**
15 points

**Waterway
and Scour
Adequacy**
10 points

Functionality
5 points

Project Prioritization for Bridge Programs



Candidate – Unfunded projects in the budget book with authority to spend that may or may not advance

Pre-Candidate – Top, non-asset-related regional needs to be considered for candidate or advanced status

Functionally Obsolete – A legacy classification which was discontinued with the enactment of MAP-21. FHWA is no longer tracking this measure as it has shifted to a performance-based program as established in MAP-21 and continued in the Fast Act.

Highway Bridge – A public vehicular structure more than 20 feet in length that spans an obstruction or depression.

Bridge Definitions



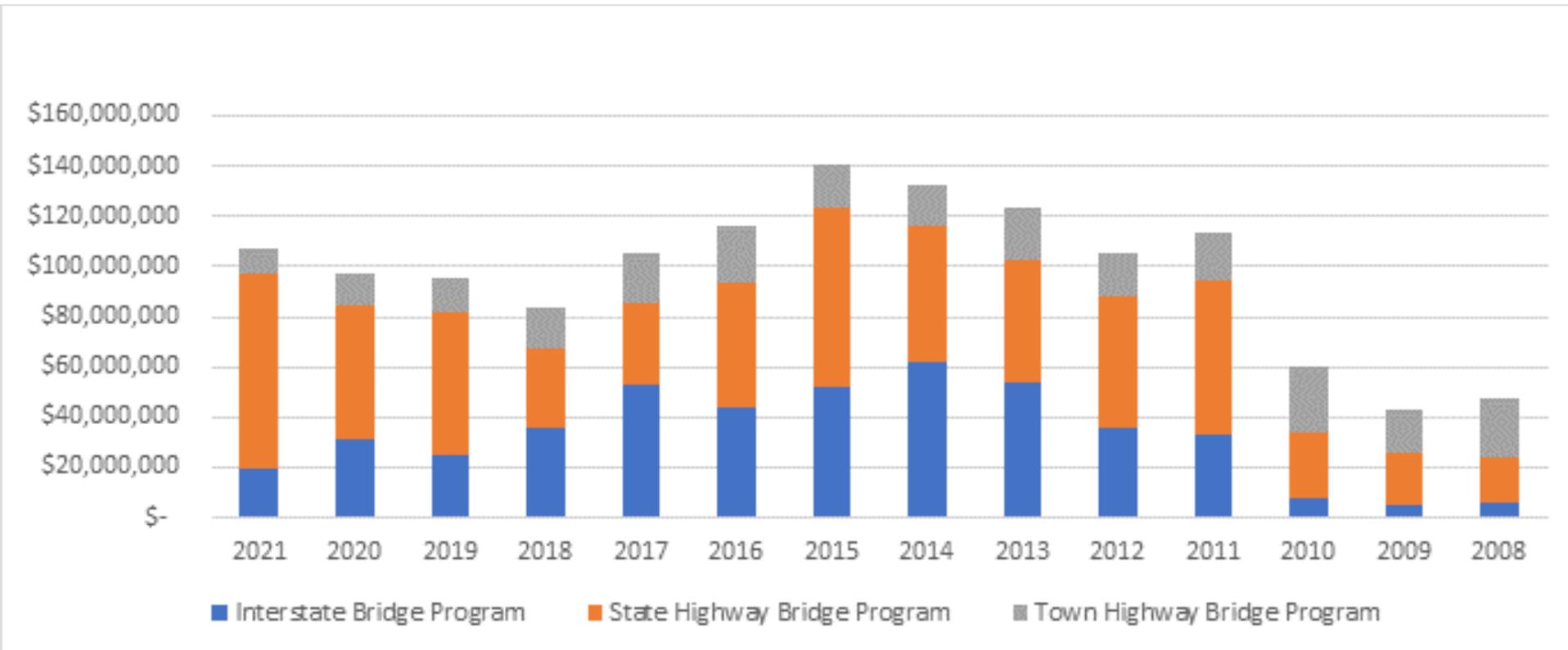
Structures Program Budget FY2021

\$101.7 million for bridges:

- 65 Projects funded for Construction
- 92 Projects Funded for Development and Evaluation
- Spending increased \$3.2M from SFY 2020 (3%)



Program Funding Trends



Interstate Bridge Program FY2021

\$ 22.65 Million

21	Projects funded for Construction
14	Projects funded for Development and Evaluation (4 Large Culverts)
1	Design Build project in progress – Rockingham
4	Bridge Maintenance projects using Federal Funds (90/10)

Interstate Bridge Program Summary:

- Spending down \$8.2 million from last year
- Rockingham Design Build to spend \$2.8M in FY21 and should be complete by Late fall of 2020
- Four Bridge deck replacements on I-89 in Berlin will be under construction this summer
- Lebanon NH – Hartford VT bridge on I-89 is being re-advertised by New Hampshire. Hoping for more bidders and better price
- Hartland overpass structure project using innovative construction/ Bridge type and received increase Federal share for project (95/5)

Rockingham IM091-1(66) Design Build - Update

Project Spending:

- Through 2020 = \$47.2 Million
- Projected 2021 = \$2.8 Million
- Total Costs \$50 Million



Project Progress:

- North bound bridge complete and opened
- Southbound traffic is on the Northbound barrel
- New Piers were complete
- Girders were set (See pictures)
- Project scheduled to be complete in late fall of 2020

Rockingham IM091-1(66)



Town Highway Bridge Program FY2021

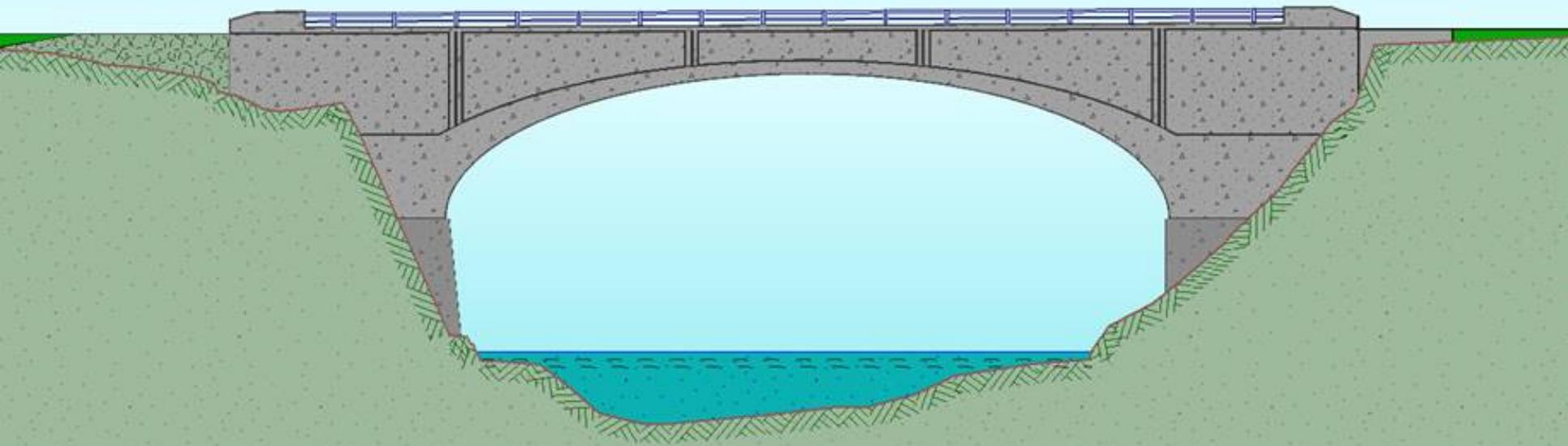
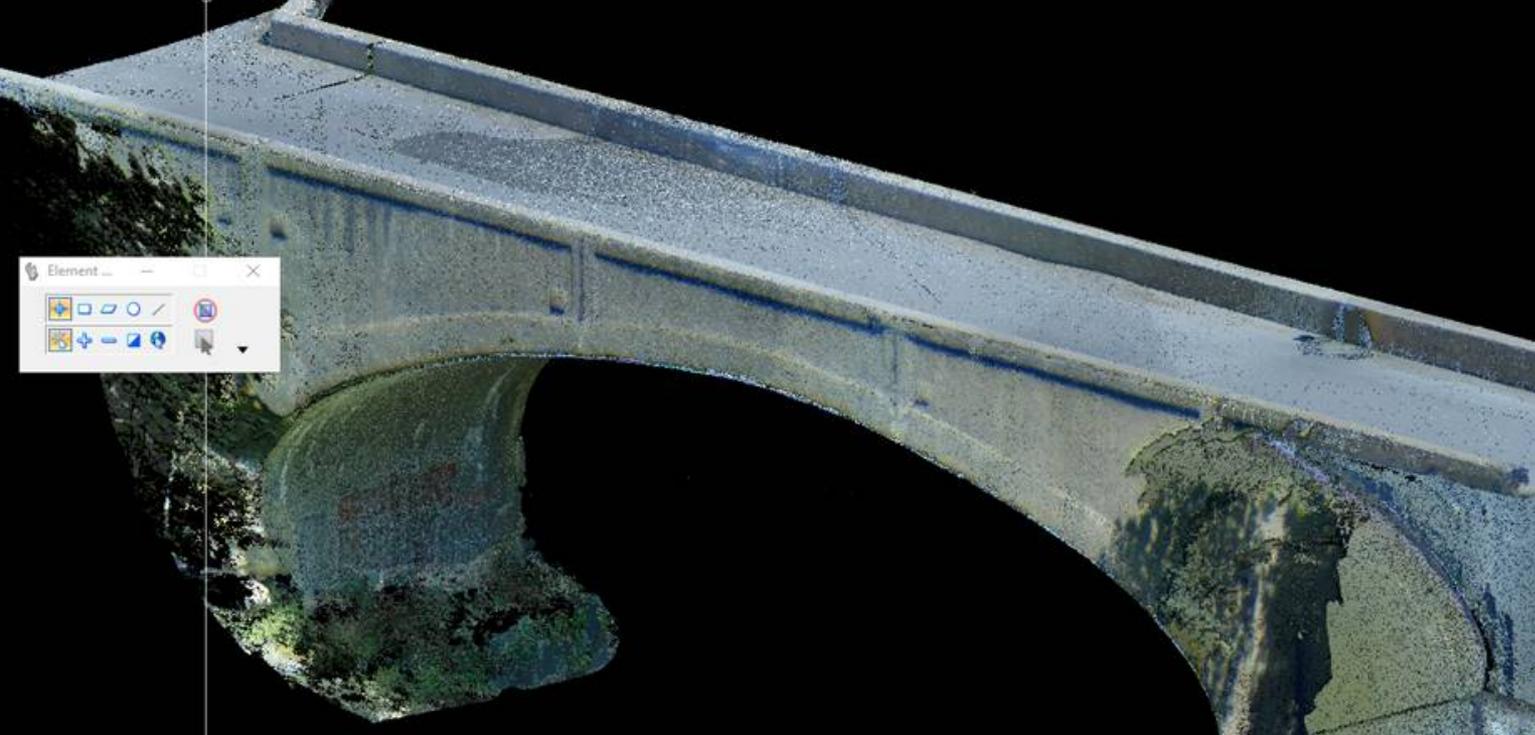
\$11.07 Million

9	Projects Funded for Construction
29	Projects funded for Development and Scoping
2	VT-NH Border Projects funded for Construction
1	Covered Bridge Project in scoping (Salisbury – Cornwall)

Town Highway Bridge Program Summary:

- Down \$2.8M from last year
- Brattleboro – Hinsdale Spending significant funds for construction and Right of Way in FY21. Will spend several millions in construction over the next 4 years
- Construction funding for bridges in several towns:
 - Newbury – BR #15 on Boltonville Road over the Wells River
 - Burke – BR #35 on Hayden Crossing Road over the West Branch of the Passumpsic River
 - Eden - BR #23 on Knowles Flats Road over the White Branch of Gihon River
 - Leicester – BR #4 on Old Jerusalem Road over the Leicester River
 - Orleans – BR #10 on Main Street over the Barton River
 - Newfane (Arch Bridge) – BR #12 on Depot Road over the Rock River

Newfane
Historic Arch
Bridge - Precast
Replicate



State Highway Bridge Program FY2021

\$67.96 Million

35	Projects Funded for Construction (11 large culverts)
48	Projects Funded for Development and Evaluation (10 large culverts)
12	Large culvert replacement or rehabilitation funded for construction
1	VT-NH Project funded for construction (Lancaster-Guildhall Rte. 2)
2	Construction funding for Alternative Contracting – Construction Manager/General Contractor (CM/GC) Projects (Middlebury & NH-GI)

State Highway Bridge Program Summary:

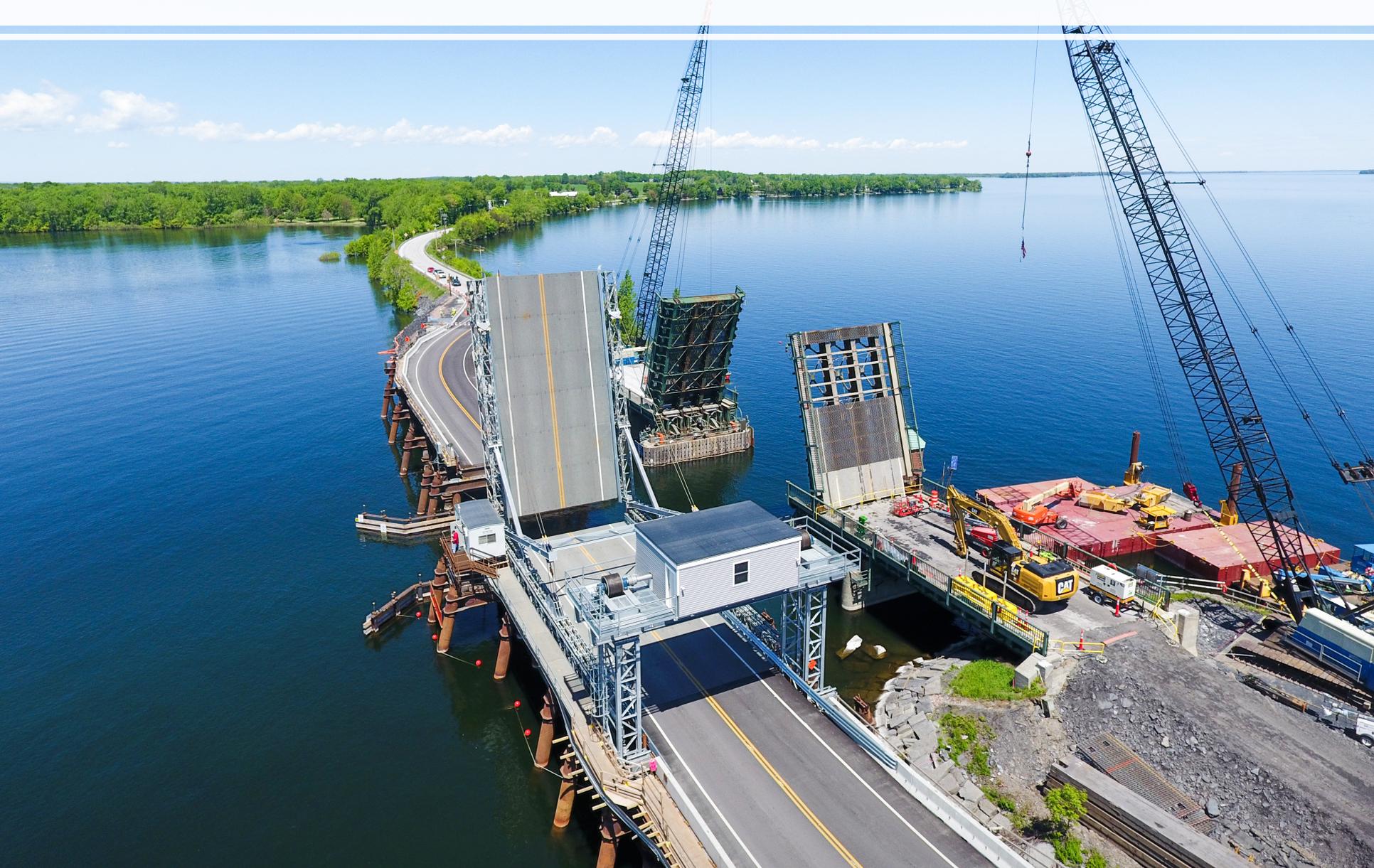
- Up \$13.6 million from last year
- Middlebury and NH-GI spending \$36.4 Million in SFY21
- Middlebury Spending a lot in the current fiscal year (\$37M). Summer shut down for Rail work will start in SFY2020 and continue into SFY 2021
- Georgia BR 1 on VT 104A (Currently one-way alternating traffic due to damage)
- Moretown BR 2 on VT 100B (Currently one way alternating due to condition)
- Heavy focus on Large culvert inventory (Greater than 6')

North Hero – Grand Isle Construction Update

- \$70 million Construction project
- Temporary Bypass with Movable bridge was opened to traffic in May 2019
- Construction of new movable bridge on existing alignment began last summer
- Polychlorinated Biphenyls (PCBs) discovered in the soil during excavation
- Corrective Action plan implemented for proper handling and disposal
- One year delayed in new bridge opening



NORTH HERO-GRAND ISLE BHF 028-1(26)





Middlebury WCRS(23) - Tunnel



Middlebury Tunnel Project Update

Early Work Package 2 –
Completed

Major Accomplishments Include:

- Completed 3 large shafts
- Completed tunneling for drainage system
- Completed the drainage outfall structure at Otter Creek
- Completed construction of temporary access roads

Drainage Outfall



Completed the drainage outfall structure at Otter Creek

Middlebury Tunnel Project Update

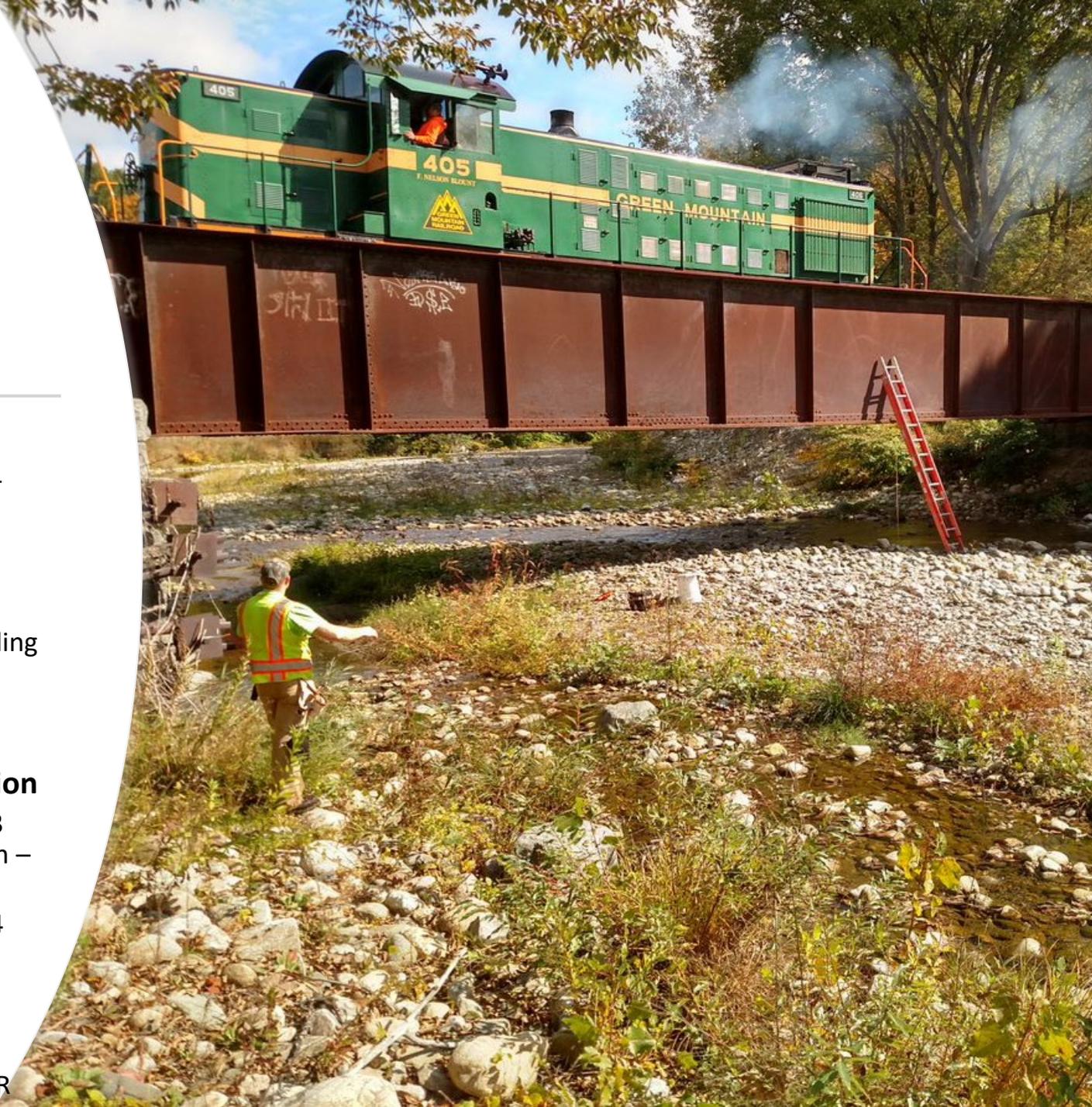
Rail Detour Support Projects

• Completed Projects

- LEICESTER WCRS(23)C/1
18B040 Wye Rehab
- RUTLAND-MIDDLEBURY
WCRS(23)C/2 18B041
Siding/Switches
- Upgrades to Global loading
facility (Albany, NY and
Burlington, VT)

• Projects under Construction

- RUTLAND WCRS(23) C/3
18B299 Wye Restoration –
On the 10G Report
- RUTLAND WCRS(23) C/4
18B300 Stub Track – On
the 10G Report
- Upgrades for increased
loading on the Green
Mountain Line and NECR





LEICESTER WCRS(23)C/1 18B040 Wye Rehab

Cost \$1,508,796



RUTLAND-MIDDLEBURY
WCRS(23)C/2 18B041
Siding/Switches
Cost \$2,595,599

GMRC Structural Steel Upgrades

- Rail detour speed needs to be 20 mph to meet the track times of the competing railroad
- Four structures along the GMRC did not load rate for 20 mph speeds
- This cost was not previously considered in past estimates (January of 2019)
- Total Cost Estimate \$1.6 Million
- Currently being upgraded by ECI



Middlebury Tunnel Project Update

Main Project

- Installed Support of Excavation – Minipiles/Tiebacks/Timber Lagging
- Installed new Water and Sewer
- Four Weekends of Drilling and Blasting in advance of the 10 week closure
- Began fabrication of precast structure



Minipiles & Timber Lagging



State Highway 10G Increase

- **Middlebury WCRS(23) – Total increase \$28.5 Million**
 - \$10 Million Increase in Construction
 - Precast Structure (Complicated alignment)
 - Hazardous Material on site
 - Landscaping details (EA)
 - Higher than expected support of excavation along Rail corridor
 - \$1 Million Increase in Engineering
 - \$16.5 Million Increase in Rail Detour Costs
 - Many unknown costs in projects for upgrades (Global - fuel supplier)
 - Increased scope (detour route – 20MPH)
 - Rail detour continuity incentive
 - Actual operating costs vs estimated
 - \$1 Million Increase in ROW acquisition/Utility Relocation
 - One total taking required for safety
 - Business Loss – Battel Block
 - 29 effected parcels settled
 - Additional scope for Green Mountain Power relocation – underground
- **RUTLAND WCRS(23) C/3 – Total Increase \$446,800**
 - Increased scope (turnouts) / purchase of new material rather than in Stock State supplied
- **RUTLAND WCRS(23) C/4 – Total Increase \$308,329**
 - Increased scope (turnouts) / purchase of new material rather than in Stock State Supplied / coordination with TIGER Project
- **LYME-THETFORD BF A000(394) – Total Increase \$921,696**
 - NHDOT is lead Agency on developing this project. Estimate significantly increase at Final Plans. NH reviewing options for reducing costs.

10g Report – New Projects

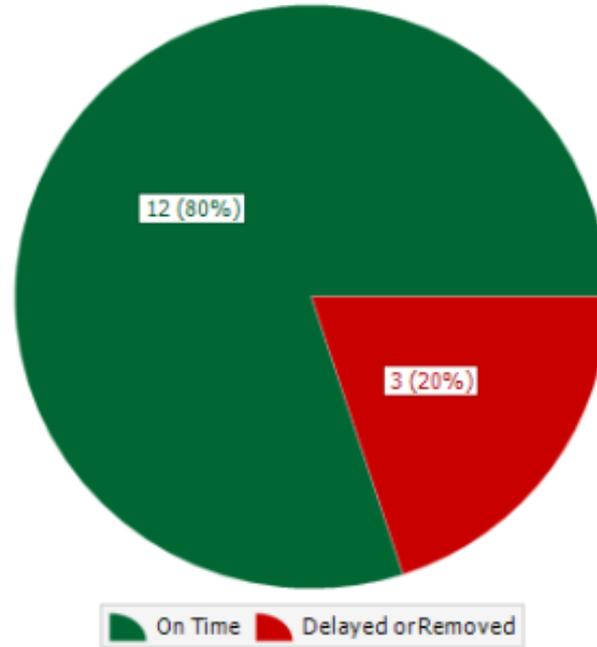
Interstate Bridge

- Hartford IM 091 2(90) Bridge 44N and S in Hartford (over the White River and NECR)
 - New Expansion Joints, Membrane and Pave. \$\$ spent welding plates. Structural steel was recently painted. Completing the joints and paving will help preserve this bridge for 20-30 more years. Engineers Estimate = \$1.75 M mostly in SFY22

State Highway Bridge and Town Highway Bridge

- Bennington BM 20101 Bridge 11 on East Road over VT279
 - Strengthen the pier as a result of damaged and misplaced reinforcing steel. Engineers estimate \$105K for SFY 2021
- Braintree BM 19402 Bridge 46 on VT 12
 - Install small Wall in the corner of the abutment to remedy scour – Completed last summer
- Fair Haven BM19301 Bridge 3E and W on US 4
 - Concrete Repairs at Expansion joints and bridge seat repair
- Rutland City BM 19302 Bridge 27 on River Street over VTRR
 - Mill and Repave which was completed this year
- Hanover-Norwich BF A004(800) Connecticut River bridge (Ledyard)
 - Preservation scheduled for SFY2024. NH was planning on doing it sooner but moved the date.
- Hardwick BF 037-3(8) Bridge 1 on VT 16
 - Applying Metalizing coat in the field. Grant awarded from FHWA for innovation
- Middlebury VTRY (19)
 - Replace switches in Middlebury yard to support tunnel project during train detour
- Walpole NH – Rockingham VT Connecticut River bridge (Town Highway)
 - Deck resurface and Expansion Joint Replacement

2019 Performance Measures

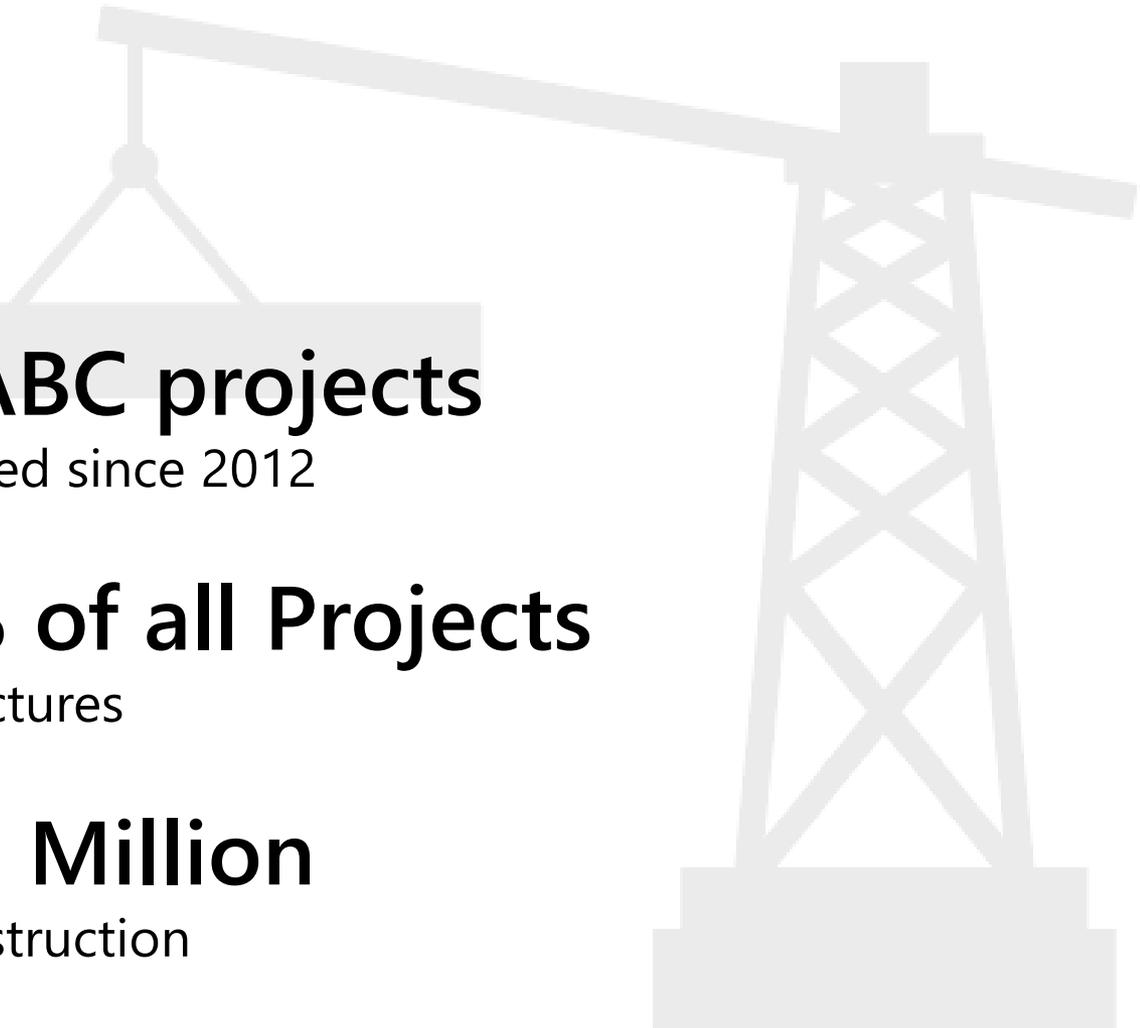


	Program	On-Time	Delayed	% On - Time
➔	Interstate Bridges	6	0	100%
➔	State Highway Bridges	6	3	67%
➔	Town Highway Bridges	0	0	0%
➔	VTrans Program Totals	12	3	80%

State Highway Bridge:

- Montgomery Bridge Deck Replacement Bridge #19 on VT 118 - 1 Year delay for Funding
- Montgomery Bridge Deck Replacement Bridge #20 on VT 118 – 1 year Delay for Funding
- Plymouth Culvert Replacement Bridge #115 on VT 100 - 1 Year delay for Funding

Accelerated Bridge Program



92 ABC projects

Delivered since 2012

46% of all Projects

In Structures

\$181 Million

In Construction

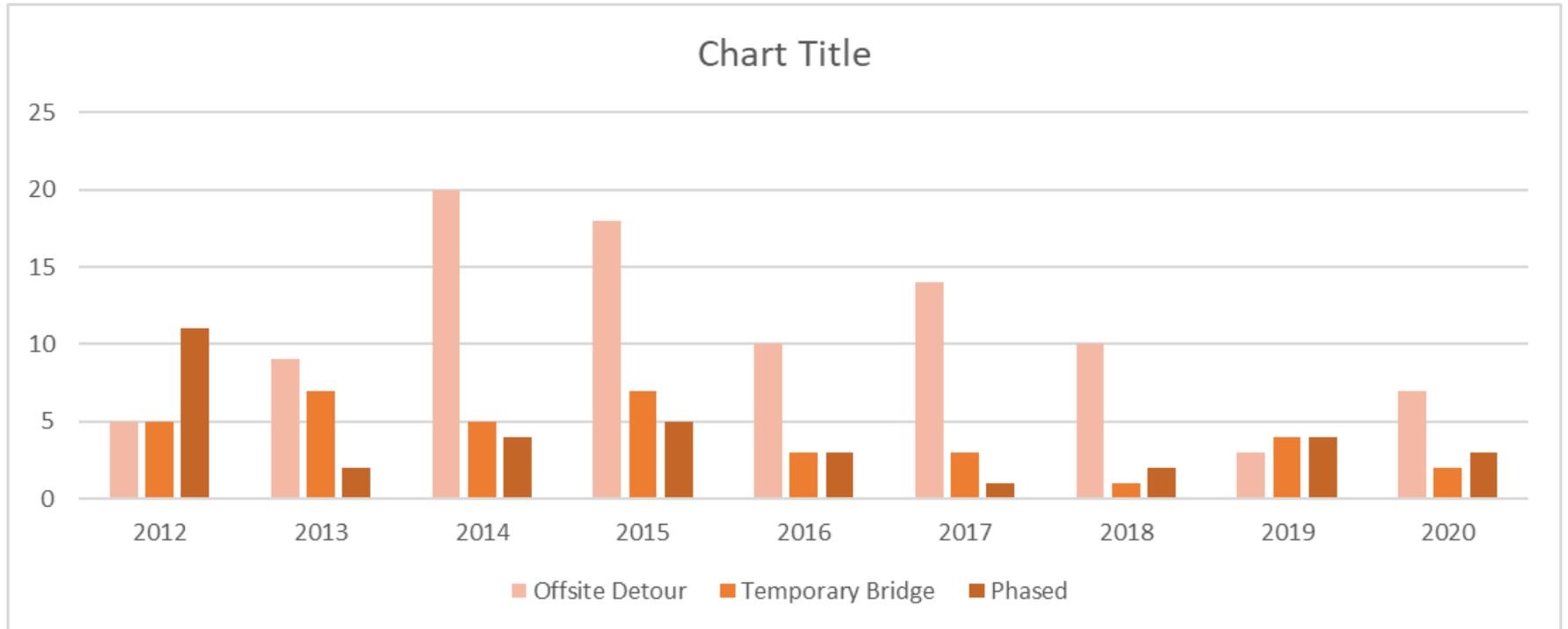
98% on time

Bridge openings

Accelerated Bridge Construction

	Accelerated Bridge Construction	Conventional Construction	% ABC	% Conventional Construction
2012	7	19	27%	73%
2013	8	14	36%	64%
2014	18	16	53%	47%
2015	23	11	68%	32%
2016	8	10	44%	56%
2017	14	9	61%	39%
2018	7	6	54%	46%
2019	2	8	20%	80%
2020	5	13	28%	72%
TOTAL (2012-2020)	92	106	46%	54%

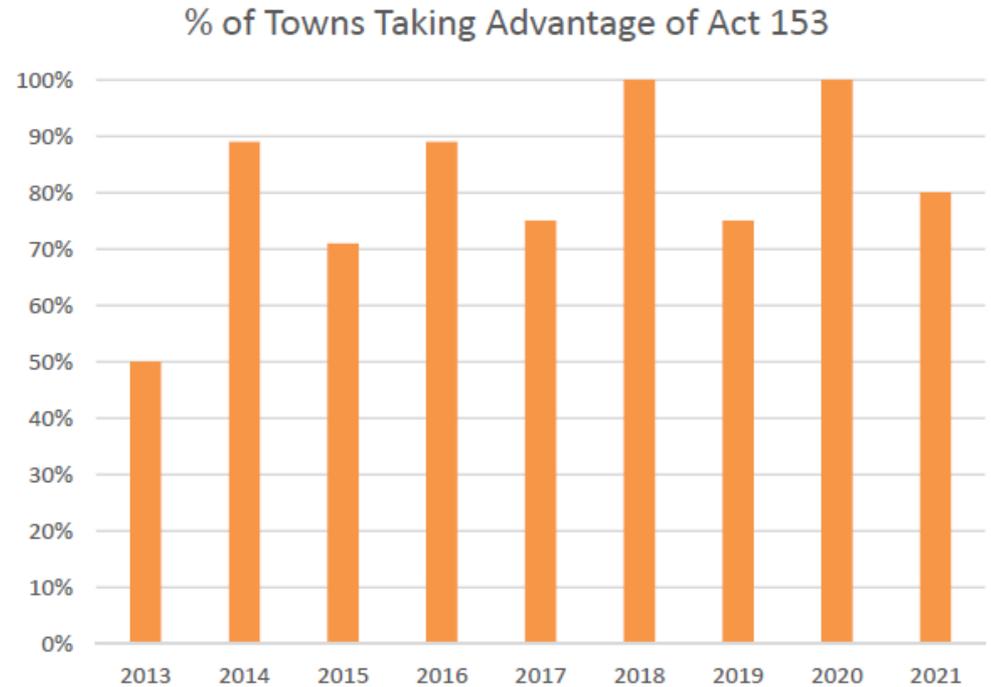
Short Term Road Closures 2020



	PROJECT NAME	PROJECT NUMBER	ROUTE	Construction	Duration	Scope
2020	GEORGIA	BF 023-1(7)	VT-104A	Accelerated	35 days	Full Bridge Replacement
2020	MT. HOLLY	BF 0133(12)	VT-155	Accelerated	28 days	Culvert Replacement
2020	PUTNEY	STP DECK(38)	US-5	Accelerated	14 days	New Bridge Deck
2020	MORETOWN	BF 0167(16)	VT-100B	Accelerated	60 days	Full Bridge Replacement
2020	EDEN	BO 1448(44)	Knowles Flat Rd	Conventional	closed	Full Bridge Replacement

Act 153

	Number of Towns
2012	Act 153 is passed
2013	3
2014	8
2015	10
2016	8
2017	6
2018	3
2019	3
2020	2







Culvert Liners:

“Spray-on liners” are being utilized to extend the service life of deteriorated culverts.

Maximizes hydraulic capacity and allows for rehabilitate of culverts with poor geometry.

2 culverts lined last year



Highgate Before



Highgate After



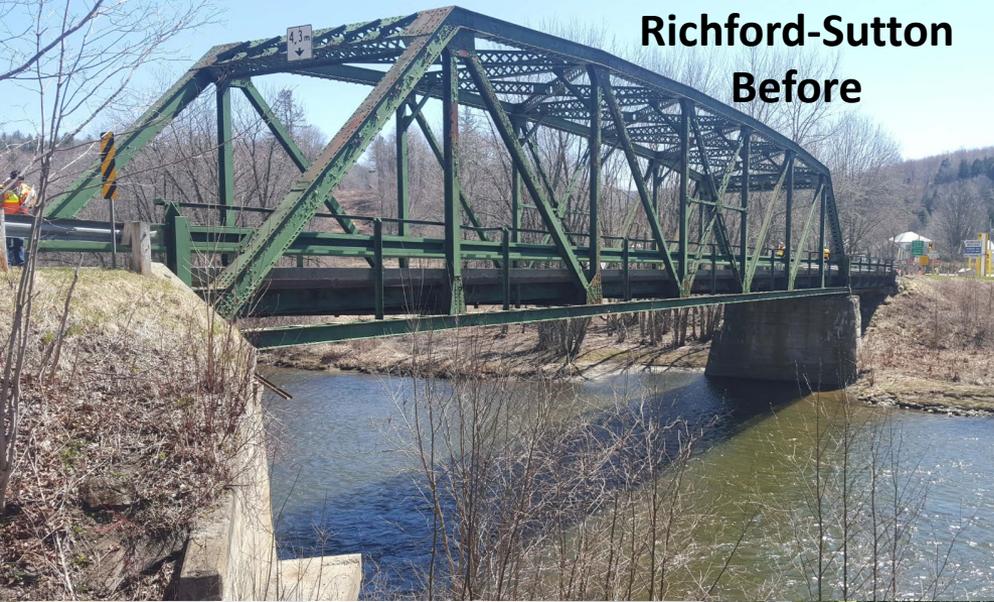
Pittsfield Before



Pittsfield After



**Richford-Sutton
Before**



**Richford-Sutton
After**



Emergency Response – Halloween Storm

Georgia Exit 16 SB offramp

- Permanent Replacement structure box culvert designed, fabricated and installed within 7 weeks of ramp closure
- Structures Project Manger/Hydraulics Engineer Nick Wark oversaw plan development and worked with Contractor to negotiate fair price for complete replacement
- Construction Resident Engineer Chris Lavalette managed the 24/7 oversite to complete construction on December 23rd
- Total construction costs = \$2.3 Million (100% Federally Funded)

Eden failed culvert on VT 100

- Permanent Replacement Pipe sized, laid out and contracted in 10 days
- Structures Project Manager Rob Young worked with Bridge Maintenance utilizing ID/IQ contracting to quickly install this culvert
- Bridge Maintenance Project Manager Jeremy Salvatori over saw Construction.
- Total construction costs = \$520K (100% Federal Funded)



Kristin M. Higgins, P.E. | Structures
Program Manager

Project Delivery Bureau | Structures
Vermont Agency of Transportation -
Highway Division

219 North Main Street | Suite 201
Barre, VT 05641

e-mail: kristin.higgins@vermont.gov

phone number: 802-498-3398

Pamela M. Thurber, P.E. | Bridge
Mgmt. & Inspection Manager

Asset Management Bureau
Vermont Agency of Transportation -
Highway Division

219 North Main Street | Suite 201
Barre, VT 05641

e-mail: pam.thurber@vermont.gov

phone number: 802-595-2270

Questions?

